

23.X-1 P. P. EWALD IN HIS GERMAN PERIOD.

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The year 1910 may be assumed as the beginning of Ewald's scientific career when he choose from one dozen topics offered to him by Arnold Sommerfeld the most difficult one: to derive optical double refraction in a rhomboedric space lattice of point scatterers. Ewald started his calculation, very unusually, by considering an infinite lattice instead of following the fate of a wave incident upon it from outside. Somewhat irritated by his own unconventional calculation -which indeed resulted in double refraction and initiated self-consistent field methods- he consulted Max von Laue, who was well known for his profound knowledge in theoretical optics in Munich, early in 1912. To his astonishment, Laue seemed to be unaware of the concept of space lattices as final constituents of crystals and asked about the hypothetical distances between the scattering dipoles assumed by Ewald. The answer -about 1/10 of the likewise hypothetical x-ray wavelength- obviously induced the concept of the diffraction of x-rays in crystals which Laue realized shortly later, about Easter 1912, together with Friedrich and Knipping.

Already in the following year Ewald contributed his concept of the "Ausbreitungskugel", nowadays called Ewald sphere, to easily detect "strong" reflections; shortly later he started his series of papers on crystal optics with visible light and x-rays (which will be discussed by Prof. Kato); one of the most outstanding results of the calculations was the famous Pendellösung. From slight deviations of the positions of higher order Bragg reflections he derived a first experimental indication on the validity of the dynamical theory; he clearly adjoined kinematical theory to real (imperfect), dynamical theory to perfect crystals. He wrote his book "Kristalle und Röntgenstrahlen" and an important Handbook Article, and published further contributions to theory and experiment together with Helmut Hönl and Mauritius Renninger at the Technische Hochschule Stuttgart. There he was Professor (1921) and Rector (1932). But as opposed to the NS regime he resigned from this position and finally left Germany in 1937. After the war special events saw him back in his country: to represent the IUCr at the celebration of Laue's 80th birthday (Berlin 1959); to receive the Max Planck medal of the German Physical Society (Munic 1978); to commemorate Laue's 100th birthday (Berlin 1979). Many times he visited Gerhard Borrmann and his co-workers in Berlin-Dahlem to discuss new aspects of his Dynamical Theory.

23.X-2 PAUL P. EWALD - AN APPRECIATION. By H. J. Juretschke, Polytechnic University, Brooklyn, New York.

An informal and personal account of P.P. Ewald as colleague and friend, and as activist on behalf of crystallography, mainly during his years in America at the Polytechnic (1949-1959) and after retirement (1960-1985). Among the highlights are his concerns about the past and future of the crystallographic community - preserving its history, as well as organizing its societies and publications - and his many personal contributions to its well-being.